Otherwise, it is added to the vector store 520 and sent to a MAC 521 where the square of the magnitude is calculated 522. The reciprocal is computed in 523 and is stored in 524.

In **Fig. 6**, an apparatus is depicted that ranks interference and determines which interference vectors are included in the construction of the interference matrix. The interference ranking circuit includes a plurality of Fast Walsh Transform (FWT) operators 610 and 610', a selector 620, a combiner 630, an estimate block 640 and a ranking circuit 650 and 650'. In the illustrated embodiment, the plurality of FWT operators includes one FWT operator per demodulation finger of the RAKE receiver. In other embodiments, the FWT operators may be shared among the RAKE fingers. The FWT operators produce an indication of which channels are present in a received DS-CDMA signal. The FWT operators essentially correlate the despread signal produced by the despreader against all possible Walsh code symbols that may have been broadcast by the transmitter. For certain cdma2000 embodiments, this is inclusive of quasi-orthogonal functions (QOFs). The indication of which channels are present may also include an indication of received signal strength or of signal energy.

According to an embodiment of the present invention, the Fast Walsh Transform (FWT) method is used in a novel manner to perform additional operations of channel estimation, comparison of the channel amplitude with a pre-determined threshold, and the use of certain channels to construct an interference matrix for use in subsequent interference cancellation operations for all Walsh code lengths. The process begins with the shorter Walsh codes (supplemental channels) and searches for longer Walsh codes in the same family if the shorter ones have not been determined to be present. Such a Fast Walsh Transform method is described in U.S. Patent Application Serial No. 10/686,829, filed October 15, 2003, entitled "Method and Apparatus for Channel Amplitude Estimation and Interference Vector Construction", and U.S. Provisional Application Serial No. 60/418,187, filed October 15, 2002, which are assigned to the assignee of the present invention, the entire disclosures of which are incorporated herein by reference.

Fig. 7 illustrates the steps involved in implementing the FWT. The apparatus uses short code despread and phase stripped data as inputs in step 720 and performs Fast Walsh step update 730 on the data. The process begins with the shortest allowed Walsh codes and increases level by level to longer codes. If the Walsh step leads to a vector